



ACTION MEMORANDUM AMENDMENT

*for a
TIME-CRITICAL REMOVAL ACTION
TREATMENT OF PFOS- and PFOA-
CONTAMINATED WATER IN
RESIDENTIAL WELLS
Near*

FAIRCHILD AIR FORCE BASE, WASHINGTON

Prepared By
United States Air Force
Air Force Civil Engineer Center
Fairchild AFB, Washington

Final
April 2019

**ACTION MEMORANDUM AMENDMENT FOR A
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IN RESIDENTIAL WELLS
NEAR FAIRCHILD AIR FORCE BASE,
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I. PURPOSE

The purpose of this Action Memorandum Amendment is to document approval and decision by the U.S. Air Force (USAF) to add the future action option of connecting a residential property to an adjacent municipal system where the original action to install an in-home water treatment system is not practicable and/or cost effective.

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for details of the purpose of the entire action.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for the site description.

B. Other Actions to Date

1. Previous Actions

Previous PFAS actions conducted to date include the following.

- 2015 PFAS PA (Air Force 2015): Sixteen areas where AFFF was potentially stored, handled, used or released were identified; of those 16 areas, three were identified in the PA for further investigation through an SI, and two additional areas were identified during the SI scoping process;
- February 2017 initial SI investigation: PFOS and PFOA were identified at concentrations above the HAs in groundwater from five existing groundwater monitoring wells within the former FTA FT004 (FT01), including four wells at the eastern base boundary;
- April 2017 Phase 1: Sampling of 24 residential wells resulted in 18 residential wells with water concentrations of PFOS and/or PFOA above the HAs;
- April 2017 USAF emergency response action to provide bottled water to affected residents;

- May 2017 Phase 2: Sampling of 27 residential wells, 2 monitoring wells, and 4 municipal supply wells resulted in 3 residential wells and 2 municipal supply wells with water concentrations of PFOS and/or PFOA above the HA;
- June 2017 Phase 3: Sampling of 12 on-base monitoring wells and 5 off-base monitoring wells in the vicinity of the Craig Road Landfill resulted in 3 wells on the northern boundary of the base with PFOS and/or PFOA above the HA; and sampling of 1 additional off-base residential well (b) (6) and effluent from the City's wastewater treatment plant also indicated concentrations of PFOS and/or PFOA above the HA;
- May and June 2017: USAF emergency response action to provide bottled water distribution to residents with private wells exceeding the HA, and bottled water distribution to residents of the City of Airway Heights in cooperation with City efforts; and
- May 2017 on-base SI activities implemented at five AFFF areas identifying absence or presence of PFAS.
- July 2017 – April 2018: Additional off-base sampling of residential wells to evaluate the potential for additional users of groundwater containing PFOS and/or PFOA above the HA.

2. Current Actions

Current PFAS actions include the following activities:

- Periodic resampling of residential wells with detectable PFOS and/or PFOA below the HA.
- Development of conceptual design of in-home water treatment systems for residential wells testing above the HA as presented in this Action Memorandum and the Conceptual Design Report dated 19 July 2017.
- Continuation of the program to provide bottled drinking water to residences and businesses testing above the HA.
- Design and installation of in-home water treatment systems for residential wells testing above the HA..
- Operations and maintenance of the treatment systems including performance sampling to ensure the systems are effective in removal of PFOS and PFOA to concentrations below the HA levels.

3. Planned Actions

Planned PFAS actions include the following.

- Final design and installation of in-home water treatment systems for residential wells testing above the HA.
- Conduct long-term operations and maintenance of the treatment systems including performance sampling to ensure the systems are effective in removal of PFOS and PFOA to concentrations below the HA levels.
- Connect residential properties to an adjacent municipal system where installation of an in-home water treatment systems is not practicable and/or cost effective.

- Conduct periodic resampling of wells that initially tested below the HA.
- Conduct sampling of private wells not previously sampled as owners request the sampling and that are within the area thought to be at risk of PFOS and/or PFOA.
- Continue providing bottled water as needed.

C. Federal, State and Local Roles

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for Federal, State, and local roles.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, STATUTORY AND REGULATORY AUTHORITIES

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for threats to public health or welfare or the environment, statutory and regulatory authorities.

IV. ENDANGERMENT DETERMINATION

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for endangerment determination.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

The Removal Action Objective (RAO) of the TCRA is to eliminate the imminent and substantial danger to human health or the environment posed by PFOS and/or PFOA-contaminated water above EPA's lifetime health advisory used as drinking water through installation of a residential treatment system for impacted residences or connection to a municipal drinking water system. The treatment systems will include the use of granular activated carbon (GAC) to treat water from the impacted wells. Additional treatment equipment will include pre- and post-filtration and ultraviolet disinfection. Bottled water is currently being provided to affected residents until treatment or connection to a municipal water supply is in place and effectiveness confirmed.

A GAC treatment system is proposed to be installed at affected residences. Each treatment system will be installed between the well and house to treat water prior to water utilities where consumption would occur. Based on the results of the on-site assessment work and our cost estimation efforts, the installation requirements and associated costs will vary significantly among residences. A general concept design for the treatment system equipment has been

developed but will need to be modified to meet the infrastructure needs of the individual residences.

Where a GAC treatment system is technically unfeasible, not practical, or not cost effective and there is a municipal drinking water system main adjacent to the property, the home plumbing will be connected to the municipal drinking water system in coordination with the property owner and the municipal system.

2. Contribution to Remedial Performance

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for contributions to remedial performance.

3. Applicable or Relevant and Appropriate Requirements (ARARS)

Refer to the attached Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water in Residential Wells near Fairchild Air Force Base, Washington, Final, March 2018 for ARARs.

4. Project Schedule

Design and installation of in-home water treatment systems under the original TCRA is substantially complete and expected to be fully complete in early 2019.

The proposed TCRA Amendment is anticipated to be approved by the USAF in early 2019. The homeowners identified for municipal system connection will be consulted about the details of the proposed connection designs to determine if modifications are necessary. The AF will also coordinate proposed connection approval and schedule with the municipal water system.

If construction and connection approvals are received as anticipated, plumbing modification and connections will be made in the Spring of 2019.

B. Costs

Based on residential system analysis in 2018, the TCRA Amendment option for residential connection to an adjacent municipal system applies to 2 residences. The estimated total cost to connect 2 residences to an adjacent municipal system is \$97,200. The estimated cost of this option is less than the estimated cost of design and installation of in-home water treatment systems.

This estimate includes cost for the design and review effort, residential connection fees, procurement of equipment, construction at each site, installation oversight, commissioning and inspections for 2 affected residences. Once the residences are connected to the municipal drinking water system, all future water usage costs will be the responsibility of the property owner.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Due to completed and ongoing emergency actions to provide bottled water to affected residents, there is no known ongoing exposure to human receptors. Additional sampling that may result in detection of PFOS, PFOA, and/or PFOS+PFOA above HAs in water being used by residents for drinking and/or cooking will trigger provision of clean water by the USAF. If the action proposed in this Action Memorandum Amendment were not taken, the USAF would continue to provide bottled water to affected residents for consumption over an extended period of time. Use of bottled water is an inconvenience to affected residents, and provision of bottled water requires continuous management. A bottled water delivery program is designed to be a short-term solution until an interim or long-term solution can be implemented.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this TCRA Amendment.

VIII. PUBLIC PARTICIPATION

The USAF is maintaining close communications with the local community and regulators. A public meeting was held on 15 November 2018, and USAF contact information was provided for community questions and input. This TCRA Action Memorandum Amendment will be included in the Administrative Record (AR) after a 30-day public comment period.

IX. ENFORCEMENT

There are no enforcement activities related to this TCRA. The USAF is conducting this removal action as part of DERP requirements.

X. RECOMMENDATION

This Action Memorandum Amendment documents the decision for the TCRA for PFOA and PFOS contaminated water in residential wells near Fairchild AFB. This decision is developed in accordance with CERCLA as amended.

This decision is based on the AR file for the site. Conditions at the site meet the NCP section 300.415(b)(2) criteria for determining that the proposed removal action is appropriate. The EPA has been a participant in the planning of this action and supports the recommended action.

XI. REFERENCES

Air Force 2015. Final Preliminary Assessment Report For Perfluorinated Compounds at Fairchild Air Force Base Spokane, Washington, September 2015.

Air Force 2017a. Final Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Environmental Programs Worldwide, Quality Program Plan, March 2017.

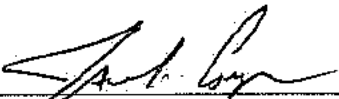
Air Force 2017b. Final Installation-Specific Work Plan, Fairchild Air Force Base, WA, Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Environmental Programs Worldwide, April 2017.

Air Force 2017c. Final Action Memorandum for a Time-Critical Removal Action Treatment of PFOS- and PFOA-Contaminated Water in Residential Wells Near Fairchild Air Force Base, Washington, March 2018.

XII. SIGNATURES

The signature documents the decision made to amend the selected Removal Action of the Action Memorandum for a Time-Critical Removal Action Treatment of PFOS and PFOA-Contaminated Water In Municipal Well Near Fairchild Air Force Base, Washington, Final, March 2018. The decision may be reviewed and modified in the future if new information becomes available that indicates the presence of pollutants or contaminants or exposures that may cause unacceptable risk to human health or the environment.

Time-Critical Removal Action Memorandum Amendment Approval



JASON S. CAMPBELL, O-6, USAF

Deputy Director, Environmental Management Directorate

14 Oct 19

DATE